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This is Not a Pixel: building trust in digital art through the blockchain

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This paper discusses a range of perspectives on the author's recent research activities in the field of digital painting. The medium of the pixel is celebrated with reference to the history of accessible computer graphics systems, and the value of data-only digital art is considered. Drawing on the author's digital art practice and appropriating ideas from quantum theory, this paper argues that human labour still has value in an increasingly algorithm-centric world. The problem of conferring provenance on purely digital artworks is examined through a discussion of newly available blockchain technologies, and an offer is made to gift ownership of some of the author's virtual paintings to the Computer Arts Society.

Digital Painting. Blockchain. Virtual Reality.

1. INTRODUCTION

I am part of the first generation of artists that grew up with the pixel as an accessible artistic medium. When I first started learning to program a Sinclair ZX81 at the age of eleven, I used it to make pictures. There were so few of the huge black pixels on my television screen that I could plot them out first on paper. I did not encounter oil paints or acrylics until many years later, and I never really gained a mastery of physical painting media as I found them hard to manipulate and too permanent, too difficult to undo. Pixels were my first painting medium, and it is without irony that I use the term *painting* to refer to the digital images I make now. In this paper I discuss how my lifelong love of manipulating pixels has manifested itself in my recent research.

2. NON-PHYSICAL ART

The substance I learned from an early age was the pixel, and the specificity of this medium is an integral part of my painting practice. Although pixels have now shrunk to the point that they are barely visible, when I paint on my iPad, I zoom in until I can see the pixels as big as they were on my ZX81. These perfectly flat squares of colour are my visual atoms,

and I'm manipulating them at a microscopic scale. Although I mimic the act of painting, stroking a flat surface with an electronic brush, I have no desire to mimic the appearance of physical paint. I know of nothing more beautiful than the pixel and none my artworks seek to mask this beauty.

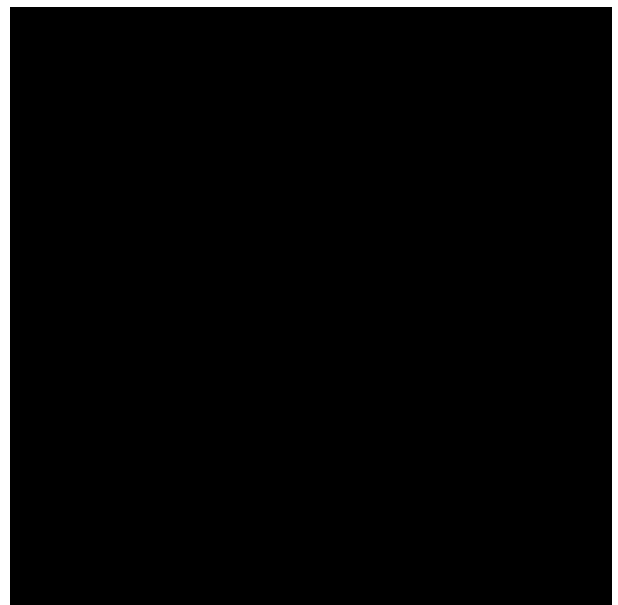


Figure 1: *This is not a pixel from a ZX81.*

The view that machines, including computers, are not a challenge to human labor has become an axiomatic belief about machinery (The Luddite Fallacy). (Betancourt 2013)

Although my work celebrates the pixel, it should not be confused with the pixelated look that characterises artworks often associated with the 'The New Aesthetic'. Whilst I don't see myself as a Luddite (Betancourt 2013), my human-centred and non-material approach to digital art sits in opposition to James Bridle's (2011) definition of The New Aesthetic as a range of modes that typically eradicate the human and place an emphasis on physical manifestations of a digital aesthetic.

My digital paintings are not pictorial transcripts of logocentric intellectual inquiry. The act of painting, for me, enables a process of thinking that cannot be accessed through talking or reading, and my artworks embody this. I recklessly co-opt concepts from science, art theory and philosophy to fuel the process of painting but it is the act of painting itself that generates original research. However, when I am painting, words emerge like vapours from a pond (Deleuze & Guattari 1994, p. 49). I diligently capture these utterances and use them to support the further development of my research. The laborious stroking of the glass of my iPad with an electronic brush, millions of times per painting (precisely two million, two hundred and four thousand, three hundred and forty brush strokes for my last painting), intensifies my interrogation of the nature of material reality. Each painting is saturated with this thinking. My research is embodied in the unreasonable form of the primary image, accompanied by a reasonable secondary commentary which serves the purpose of scaffolding and enriching my research. My paintings gain value from their transformation into words (like the ones in this paper) that can be measured more easily as research outcomes. As a paid academic, my art does not serve any other market than this.

If I was not so fortunate as to have tenure and I had to rely on the art market for sustenance, how might my purely digital artworks earn me an income? I *could* output them in a physical form and sell them. I could print them out, frame them and put a price tag on them. Unfortunately, there is nothing more dissatisfying to me than the damage that has been done to my purely digital artworks whenever I have caved in to perceived external pressure and made them physically manifest. Printing my paintings out on paper has been particularly painful, so I have tried 3D printing, video animation, audio-visual installations in pitch-black rooms, CNC routing and laser carving into slate. Even displaying the paintings on the flat rectangular glass screen of production, the original iPad screen, has felt like a disservice to the pure digital fields of data that form my paintings.

The coming of age of virtual reality technologies has offered up one method for presenting my artworks in a manner that I find palatable. Immersive environments offer a space to show my perfectly flat and perfectly thin planes of data and open up new possibilities for pushing my pixels and my viewers into another dimension. In the spatial environment I have crafted over the last few years, my paintings have expanded into the possibilities that the virtual space affords. I have written code to allow me to create pixel-accurate extrusions of my flat painting, which I have scaled up into new spatial forms: mountains and valleys of pure colour that cover an area equivalent to several square kilometres. Might this immersive manifestation of my digital art be the modern way to 'sell' my work? Although I could charge a fee in the Steam platform that I have used to offer my VR gallery experience to my audience (Truelove 2018), users do not own my work like they might own a painting I had painted onto a canvas. They cannot re-sell it, and its value does not increase or decrease according to market forces. I can give away my artwork, but the artwork's provenance is not transferred to the recipient.



Figure 2: *This is not a pixel from an HTC Vive.*

2.1 Humanity versus the machine

The many worlds view extends the idea of superposition to encompass everything, including the measuring apparatus and those who operate it. Its advocates claim that consistency requires that the entire world exists in a superposition. (Phillips 2017)

When you like a painting, you're celebrating the humanity that went into it. How can we get software to fit into that? ... computers won't replace people in the creative industries because we will always pay for humanity - for blood, sweat and tears. (Colton 2015, p. 34)

In the 'many worlds' interpretation of quantum theory, every act of observation splits the universe (Phillips, 2017). Each possibility plays out in a parallel universe, but we witness only one of a multitude of possible outcomes. One might suppose that a human engaging in the act of deciding is, in itself, a universe splitting event. If we suspend our disbelief and go with this notion, then decision making is an engine for making universes. A hand rendered painting is a record of lots of decision making: my paintings record millions of human decisions. In the countless parallel universes spawned by my actions, every possible version of each painting exists.

My decision making is guided by a set of rules, and I produce my paintings much like a computer follows the rules determined by its programming. Is the machine making decisions though? Does an algorithm playing out in a silicon chip also split the universe? If it does, are those parallel universes as interesting or important as the ones I generate by hand? Perhaps the hand of the human in the coding of the computer imbues it with humanity.

I choose to value warm and messy humanity over cold and shiny machinery. The traces of grey matter – the traces of fleshy decision-making – that spread across the faces of my paintings record life, not a simulation of life. I could write code to generate images that look identical to my paintings, but they would record just a handful of human decisions. The code could spit out thousands of images that look like my paintings every second, but every one of them would be empty (Colton 2015, p. 34).

If art is a social interaction (Mazzone & Elgammal 2019) and we dare to imbue AI with agency, then perhaps the real creative possibilities lie beyond this crude binary opposition between the human and the algorithm. A creative partnership between flesh and code is perhaps a more fruitful way to look at this issue. Neither a slave nor an enslaver, I aspire to collaborate with the digital as an equal partner.

2.2 Slow digital art and the blockchain

When a creator registers a work on ascribe, a unique, cryptographic ID is generated and then stored on the blockchain. The blockchain is a secure database where transactions can be recorded and never deleted. The cryptographic ID is a composite of the digital artwork and the artist's identity, creating a permanent and unbreakable link between the artist and their work. (ascribe.io 2016)

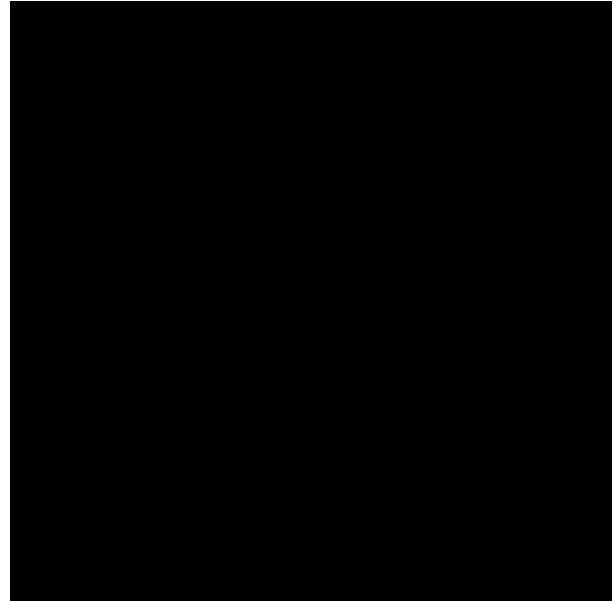


Figure 3: *This is not a pixel from an iPad.*

Cubism exerted a strong influence on my previous work. My work in the early 2000s was almost entirely preoccupied with technology-enabled cubism. However, I have progressed beyond mere space and time, and I now ponder a quantum description of reality that exists beyond the space-time musings of the Cubists. Space and time still factor in my research, but I am no longer struggling to visualise four dimensions. My current preoccupation with time now relates to the value of slowness. This is partly my rebellion against the instantaneous nature of digital processes; it is my rejection of the relentless, incessant, exponential speeding up of the modern world. My time is valuable, and I've captured it in each painting. As my research progressed, I took longer and longer to paint each image, with my most recent painting taking hundreds of hours. Although I have not often dealt explicitly with politics in my research, labour is a politically loaded notion. My activism is limited to raging, very slowly, against the breakneck speed of the machine. Without resorting to The New Aesthetic's tendency to make bytes into physical entities in a process better described as computer generated art or computer inspired art, the lack of provenance for digital art in its purest sense — as data — makes it more difficult to sell to the art market. However, there is now a way to guarantee the authenticity and ownership of entirely data-based digital art using the 'blockchain', a secure and unmodifiable decentralised database that makes cryptocurrencies possible.

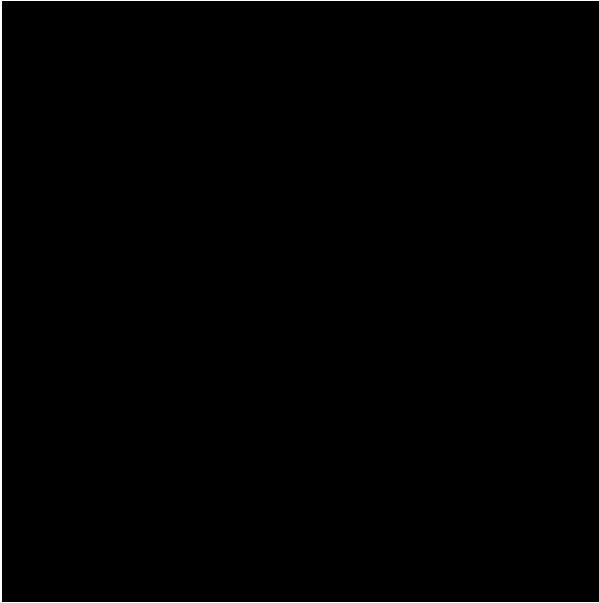


Figure 4: *This is not a pixel encoded in the Blockchain.*

Facilitated by the Ascribe.io platform, I have used this new way of building trust to encode my data-based paintings into the Bitcoin blockchain so that secure and reliable provenance can be guaranteed, which means I can now, if I choose to, sell the labour encoded in my digital paintings without printing them out and destroying their digital authenticity. The aura of the digital remains intact. Facilitated by the Ascribe.io platform, I have encoded my digital paintings in the blockchain. As an act of research, I choose to gift my favourite twenty-seven paintings to the Computer Arts Society, to do with what they wish.

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